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Are annual budgets being abandoned by companies operating in Portugal?

Evidence from the 500 “Maiores e Melhores”

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Abstract

Budgets have traditionally played a central key role in most companies in activities such as: planning, coordinating, communicating, motivating, controlling and evaluating operations (Drury, 2000). However they become a topic of critics and debate among academics and practitioners, leading to the development of the idea of beyond budgeting i.e. the implementation by managers of alternative approaches.

This study aim to present the results of a survey conducted to the 500 largest companies operating in Portugal to: 1) collect empirical evidence on how their managers see the budget as a tool to accomplish its purposes; 2) study if companies abandoned or plan to abandon the budget; 3) study, if not abandoning the budget, whether alternative approaches are being use to complement it; and 4) understand whether the beyond budgeting practices have recently changed in Portugal. Overall, we find that the majority of surveyed companies still use the budget and it is perceived to be very important. Whilst some problems are appointed to budgets, surveyed companies are complementing them with alternative approaches rather than abandoning budgets.

Key Words – *Budget, beyond budgeting, survey of budgeting practice, managerial accounting*

Section 1: Introduction

Budget stands for a financial plan typically prepared for the period of one year and serves several purposes: not only to plan, but also to coordinate, communicate, motivate, control and evaluate actions and/or decisions inside companies (Drury, 2008). Budgeting is the process through which a company traditionally, 1) estimates the costs, revenues and cash-flows of the actions that were planned, i.e., prepares a short term financial plan, to meet the targets usually set up for the next year of the company's long-term plan; and 2) controls their achievement by comparing actual with budgeted results (Drury, 2008).

As Drury argues (2000) the use of annual budget was widely taken for granted. It is a central tool in most companies and annual budgets were seen as serving an important managerial need (Otley, 1994).

In the 1990s, however academics and practitioners started questioning traditional budgeting, arguing that it:

1. Encourages rigid planning;
2. Obviates meeting demands of growing business' competitive environments;
3. Focuses on short-term financial results, and disregards key drivers of shareholders' value;
4. Shuns strategic reflection;
5. Is time consuming;
6. Its outcome (the budget) becomes easily out-of-date;
7. Allows managerial "gaming" of numbers;
8. Leads to the achievement of the budget even if such results are undesirable;
9. Hinders innovation;
10. Fails to promote communication between different business units, sustaining rigid hierarchical structure;

Such criticisms endorse the need for more anticipation, monitoring and empowerment, as well as for a less rigid planning and control procedure. This justifies the implementation by managers of alternative approaches which in some cases go

beyond budgeting. The expression **beyond budgeting** has been used primarily by Hope and Fraser (2001) to convey the idea of eliminating annual budgeting and implementing, either alternatively or as a complement, systems such as **Rolling Forecasts, Activity-based Costing and Budgeting, Balanced Scorecard, Benchmarking**, and **non-financial measures** (see also Hope and Fraser, 2003a).

Because of the above mentioned limitations of annual budgets and the flourishing of the concept of beyond budgeting, Eckholm and Wallin (2000) did a comprehensive survey of the budgeting practice in 168 Finnish companies; also Dudgale and Lyne (2004) surveyed financial and non-financial managers of 40 companies in the south-west of England to find out if managers thought budgets are needed; and Libby and Lindsay (2010) also collected empirical evidence using surveys to assess the annual budget's criticism and identified managers' opinion about it in 558 mid- to large-sized North-American companies. Transversal to the three studies is the conclusion that the majority of the firms still continue to use annual budget, and few of them were planning to abandon it. Whereas problems exist with annual budgets, companies are adapting them to overcome their limitations rather than abandoning them. There is no study about the use (or non-use) of annual budgets by companies operating in Portugal

This Work Project (WP) adds to the existing literature by studying the use of annual budgets by companies operating in Portugal. To accomplish this, both the beyond budgeting extended literature and existing surveys were drawn on, and **four main purposes were followed**:

- P1. To collect empirical evidence on how managers of the largest 500 companies operating in the merchandising and manufacturing sectors in Portugal see annual budget as a tool to accomplish its purposes;

- P2. To study if those companies have abandoned or plan to abandon annual budgets and what alternative management control approaches are those companies using (or planning to use) to replace annual budgets;
- P3. To find, in case those companies are not abandoning annual budgets, whether alternative management control systems are being used to complement the annual budget and if so, which;
- P4. To understand whether the beyond budgeting practices have recently changed in Portugal.

In the following section 2 a comprehensive literature review on the beyond budgeting issue is presented. Section 3 describes the data and methods used in this work project. Section 4 analyses and discusses the findings of this WP. Finally, in Section 5 the main conclusions from this research are drawn.

Section 2: Literature Review

In 1987, and when referring to budgeting, Umapathy said that: “(...) there is no other managerial process that translates qualitative missions statements and corporate strategies into actions plans, links the short term with the long term, brings together managers from different hierarchical levels and from different functional areas, and at the same time provides continuity by the sheer regularity of the process” (Umapathy, 1987, xxii).

More recently, annual budgeting has still been regarded as “a basis of a firm’s management accounting system” (Becker et al., 2010, p. 3) or a process which plays a pivotal role in most organizations as a system of managerial planning, control and performance evaluation (Otley, 1992). Also reinforcing Umapathy’s (1987) idea, Drury (2000) emphasized the importance of budgets in activities such as: **planning, coordinating, communicating, motivating, controlling and evaluating operations.**

And it was commonly spread that budgets serve those important managerial purposes and play a central role in most worldwide companies (Otley, 1994).

Yet, such overwhelming thrust of academic research concerning budgeting and reliance on budgetary purposes has become disconnected from the concerns raised by practitioners (Hartmann, 2000). Some have even contested the central role that budget has played (Hansen et al., 2003). For the reason that “budgeting process at most companies has to be the most ineffective practice in management. It sucks the energy, time, fun and big dreams out of the organization. It hides opportunity and stunts growth (...) in fact, when most companies win, it is in spite of their budgets, not because of them” (Welch, 2005, p.189).

Against traditional budgeting have also been some researchers such as Hope and Fraser (1997) who, as part of the Beyond Budgeting Roundtable (BBRT), started questioning how budgeting systems are usually used and developed the concept of “beyond budgeting”. The latter embraces the idea of abolishing annual budget as a trigger to improve the management model of a company (Pflaeging, 2003). This is in line with the view that traditional budgeting is “deemed broken” (Jensen, 2001), or “a thing in the past” (Gurton, 1999), or even an “unnecessary evil” (Wallander, 1999). The main criticisms of “traditional budgeting” were indeed exaggerations like being the “current worst practice” that had long been singled out (Horngren et al., 2004). Researchers emphasize that budgets are often bureaucratic, fail to meet the needs of managers in competitive environments and can encourage “earnings games” (Churchill, 1984). Annual budgets are also said to be tools of rigid planning which become easily out of date and focus on short-term financial numbers (Marcino, 2000). Other criticisms to annual budgets are that they do not stimulate strategic reflection nor foster knowledge sharing between different departments, obstruct innovation and hinder the adaptation to fast-changing market conditions (Hartmann, 2000). Thus, resulting in dysfunctional

behaviour and consuming large amounts of the management time (Libby and Lindsay, 2003b).

Nonetheless, the extant literature on the topic refers alternative approaches to plan, manage, control and evaluate in order to overpass traditional budgeting limitations. These approaches advocate implementing or complementing the annual budget with a set of more efficient systems and procedures, such as benchmarking and other forms of relative performance measures, rolling forecasts, activity-based costing and budgeting, balanced scorecard, increasing decentralization of decision-making and applying mechanisms which empower more the employees (Bogsnes, 2009; and Qu et al., 2009). Hansen et al. (2003) defined these as “better budgeting” i.e. implementing or complementing the budget with these various approaches are preferable than beyond budgeting or, in other words, abandoning budgets altogether. Also Daum, J. (2001, p.2) explains that “the goals of better budgeting are more efficient controlling processes, speeding up planning and budgeting processes, and the transition to rolling processes in comparison to a one-off annual budgeting action”.

Nevertheless, “one might expect beyond budgeting to mirror the widespread diffusion of previous innovations in management accounting and become another successful management accounting innovation” (Becker et al. 2010, p.3). However, few years after the birth of the concept, initial interest seemed to have diminished and had a reduced impact in practice (Hope and Fraser, 2003a). Trying to fill this gap, some surveys were done, constantly reporting growing dissatisfaction among organizations with their budgeting systems (Hope and Fraser, 2001; Blandsfield, 2002; Eckholm and Wallin, 2000). Pioneering work of Ghosh and Chan (1997) revealed that 97% of surveyed Singaporean companies used budget as a managerial accounting tool for

planning, control and evaluation. Additionally, Wijewardena and Zoysa (1999) showed that Australian and Japanese companies relied also on annual budgets to an extent majority. Eckholm and Wallin (2000) indicated also that few Swedish companies were planning to completely abandon annual budget, but instead, they were implementing better budgeting complementary systems such as Rolling Forecasts and Balanced Scorecard to run in parallel. Ahmad et al. (2003) surveyed Malaysian companies, and concluded, as well, that annual budgets were still being used by them. Joshi and Mudhaki (2003) replicated this study to Bahraini companies, and similarly concluded that surveyed companies used budget for management, control and evaluation purposes.

Furthermore, Dugdale and Lyne (2004) conducted a survey to financial and non-financial managers from South-West of England, reporting that non-financial managers tended to see budgets as more important and less time consuming than financial managers. Such findings are consistent with early work of Lyne (1992), which concluded that there is little evidence to support the assumption of widespread dissatisfaction with traditional budgeting. In one of the most recent survey on the topic Libby and Lindsay (2010) collected empirical evidence to assess main critics to annual budgets using a sample of North-American companies. Again these authors found that: 1) annual budgets are still used for control purposes and perceived as an adding-value tool linked essentially to strategy implementation; and 2) albeit recognizing budget's limitations, the respondents said that they are complementing the budget's use with other tools to manage, control and evaluate.

Despite what researchers found during the last decade, there are some successful companies that abandoned annual budgets and are applying beyond budgeting approaches' suggestions like Svenska Handelsbanken (Eckholm and Wallin, 2000).

Akin examples are also presented by Neely et al. (2003) of pioneering Scandinavian companies that also dispensed traditional budgeting altogether and improved their performance. Therefore, the usefulness of budgeting seems to be a still relevant issue to be researched, in particular in Portugal where no research has been done until now.

Section 3: Data and Method

To accomplish the four purposes of the present WP a survey was developed to investigate different attitudes and perspectives of the managers toward budgets and beyond budgeting approaches. Data was gathered via a web- and phone-based survey in the universe of the 500 companies operating in Portugal that are included in the ranking of *Revista Exame: “500 Maiores e Melhores”* 2010¹ edition. The total sales of *Exame 500 Maiores e Melhores* companies in 2009 represented 49% of the Portuguese nominal G.D.P.² in that year.

In order to collect the data, instead of selecting a sample size required to perform statistical significant tests, the entire population was surveyed based on the argument of Van der Stede et al. (2005, p. 669) which states that “rather than investing in sample size, resources would probably be allocated more wisely to improvements in other areas of survey design, such as in attempts to increase response rates”. Thus, 91.7% (438) of the 478 companies³ were surveyed via email, because this type of approach allows high responses rates on a short period of time. The remaining 8.3% (40) were contacted by phone and pre-notice through an email alerting the companies’ respondents about the future phone contact to answer the survey and explaining the purposes of the work

¹ *Exame* selected companies from 24 economic activity sectors and the ranking is based in 8 economic and financial indicators which reflect the corporate performance: sales growth rate, operational profit growth rate, assets and liabilities and sales profitability, sales’ gross value added, solvability and general liquidity.

² Source: International Monetary Fund statistics: *World Economic Outlook Database*, April 2010.

³ It was not possible to collect contacts of 22 companies.

project. For each of the surveyed/contacted companies, potential respondents were selected according to holding positions of Vice President, Chief Financial Officer, Controller, Director of Budgeting or Divisional Manager from non-financial divisions, thereby allowing the research of different attitudes toward annual budget across different functions. These targeted contacts were collected from *Informa D&B Portugal* database⁴ and from public information available on companies' websites.

Following Ferreira and Sarmento's (2009) suggestions, the survey was conceived by dividing it into 5 sections:

Section A deals with company's background, respondent's personal and professional background, the perceived competitive environment and effective use of the annual budget; **Section B** searches whether and how the budget is used, respondent's personal commitment to the budgeting process, the number of interactions in annual budget preparation and revisions done during the budget implementation period; **Section C** explores attitudes of respondents towards annual budget, how to classify it regarding its purposes of planning, coordinating, communicating, motivating, controlling and evaluating. This section also aims at assessing the respondents' reactions to main criticisms about traditional budgeting; **Section D** investigates the beyond and/or better budgeting practices; in other words, if respondents plan to abandon annual budget, what management alternative approaches are being implemented or planned to be implemented as an alternative to annual budget; besides section D assesses how respondent categorize the use of alternative management approaches. Finally, **Section E** scrutinizes how respondents describe the impact of annual budget and if they suggest alternative approaches in the company's financial performance. Additionally, these

⁴ The database is available at www.informadb.pt.

sections were designed and adapted by drawing on prior researches, such as Libby and Lindsay (2010) and Dugdale and Lyne (2004)

Subsequently, the survey was validated and pre-tested by 10 individuals selected from two different sources: 50% were randomly selected from the target population of this research and the other 50% were composed by practitioners and academics on this field. Here, the aim was to pretest possible answers, reduce survey size if needed, and clarify questions and terminology to make them more adherent to the reality of the respondents. The survey is essentially composed by structured (closed) questions, based on a psychometric Likert scale, since they are more prone to be transformed into qualitative data and then analyzed. The survey also comprises some open questions allowing respondents to express their personal point of view. To be completed the survey took 10 minutes of each respondent, on average. It was provided also a direct contact to clarify any doubts about survey's questions or variables used.

Then the final survey and the implementation plan were prepared and the field work of gathering answers from the targeted respondents was started. Firstly, web-based respondents were contacted through email. This email described the survey's purposes, encouraged people to participate, established a deadline to answer and reassured the respondents' anonymity; it also provided a web address that linked directly to the survey. This email was followed by two reminder emails, one sent two weeks after, and the other four weeks after the first contact. Secondly, the remaining 40 respondents were pre-noticed via email and later contacted through phone interview; the survey's purpose was described and encouraged people to participate in both type of interviews. The overall response rate is 24.5%, since a total of 141 surveys were collected, but 24 were excluded because they were not properly filled, and 1 company formally declined

to answer the survey advocating communication restrictions policy. In the end, 117 valid surveys were left of which 34.2% (40) were phone interviews and 65.8% (77) came from the web.

After cleaning and organizing the data (Data Preparation), SPSS (Statistical Package for Social Sciences) was used as a statistics method of data analysis. SPSS helps not only to describe the data through descriptive statistics⁵ but also to test the research's purposes through inferential statistics⁶ since it permits to obtain descriptive, bivariate and multivariate statistics of the studied variables. Subsequently, results, which are depicted in the next section, were analyzed and interpreted in the light of the literature previously presented.

Section 4: Analysis of findings

4.1 – Respondents specifications and attitudes to budgets

The substantive findings are discussed in this section. A total of 117 surveys were collected from directors of different departments inside the selected companies. The majority of respondents are from the financial department (35.9%) and from the administrative department (19.7%), while the minority of respondents are from the sales (7.7%) and purchases (3.4%) departments (see Figure 1). The sales volume in 2010 of surveyed companies is shown in Figure 2, and it is observable a significant number of responses in each of the different ranges of sales volume.

⁵ Descriptive statistics aim to abridge a data set, instead of use the data to learn about the population that the data are thought to represent.

⁶ Statistical inference is the process of drawing conclusions from data that are subject to random variation, for example, observational errors or sampling variation.

Descriptive Statistics

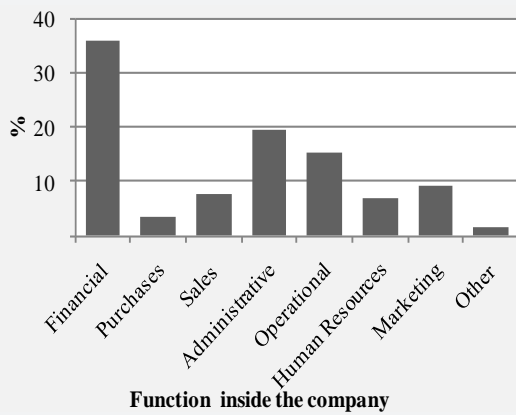


Figure 1: Distribution of respondents across different departments; Frequency: 117

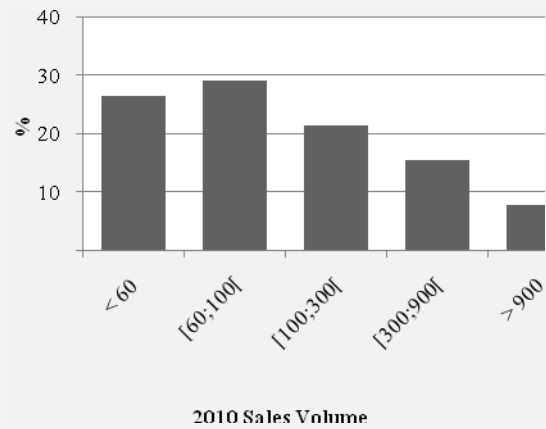


Figure 2: Distribution of companies' 2010 sales volume in Million Euros, Frequency: 117

Additionally, more than half of the respondents are working in the reported function and at the company for more than 6 years (see Figure 3) and only 11% of them are working for less than 2 years. Regarding the business competitive environment, 83.8% of the respondents characterize it as very competitive or extremely competitive, while only 7.7% consider it as roughly competitive.

Descriptive Statistics

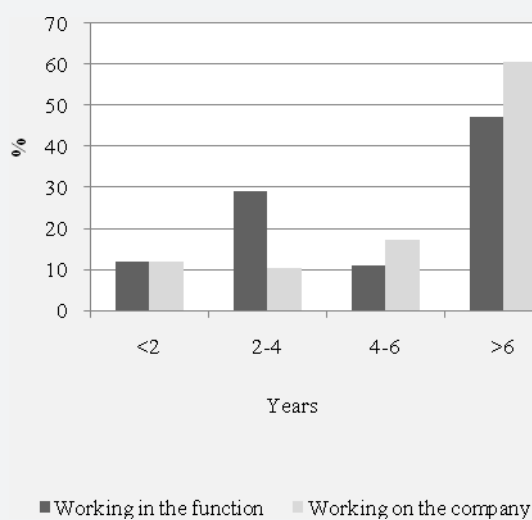


Figure 3: Distribution of respondents' years working in the function/company; Frequency: 117

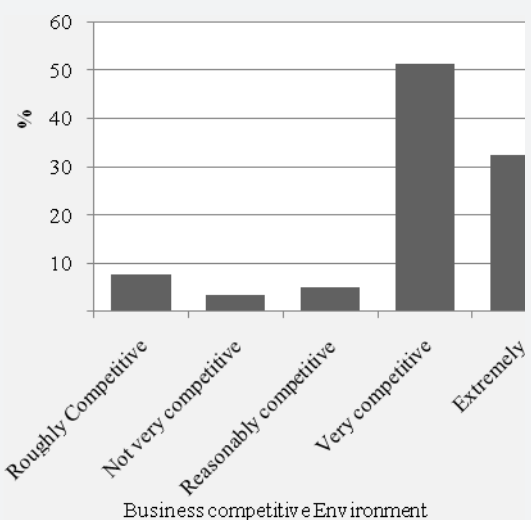


Figure 4: Distribution of respondents' classification of business competitive environment, Frequency: 117

Concerning the activity sector, 31.6% of the responding companies have their core activity in retailing, 25.6% in manufacturing and 16.2% in civil construction. The remaining (26.6%) are distributed among the other sectors.

Regarding the use of the annual budget as a tool to plan, manage and control operations, **94%** (std. dev.⁷ = 0.238) of the respondents use it. Albeit this figure is quite high, it is in line with similar surveys mentioned in the literature review.

The surveyed companies operating in Portugal spend, on average, 3 to 4 weeks in the budget preparation before its implementation. Moreover, 85% of the respondents agree that two revisions are done to the annual budget during the budgeting process.

The sample reveals an almost universal view that budgets are, indeed, considered to be very important (49.6%) or extremely important (19.7%). Table 1 shows the perception of the importance of Drury's (2000) suggested purposes of annual budget by respondents.

Descriptive Statistics

	Almost irrelevant	Not very important	Reasonably important	Very important	Extremely important
Planning	1.70%	--	10.30%	41.00%	32.50%
Coordinating	1.71%	3.42%	14.53%	52.14%	13.68%
Communicating	3.42%	9.40%	20.51%	41.88%	10.26%
Motivating	14.53%	11.97%	21.37%	40.17%	11.97%
Controlling	--	--	22.22%	28.21%	35.04%
Evaluating operations	1.71%	5.13%	11.97%	39.32%	27.35%
<i>Overall</i>	--	--	16.24%	49.57%	19.66%

Table 1: perceptions of the importance of annual budget purposes; Frequency = 100

Note: %s do not total 100%, since some respondents did not answer all questions

⁷ Standard deviation from the mean.

Planning, controlling, coordinating and evaluating performance are the most important purposes of annual budgets in the surveyed companies. For planning 73.5% of the respondents rated annual budget as very or extremely important, while for coordinating, controlling and evaluating performance a smaller percentage, near 65%, classify it as very or extremely important. Regarding communication and motivation annual budget is not seen as serving such an important purpose, since only 52.1% of respondents classify it as very or extremely important and near 15% of respondents saw annual budget as not very important for motivating. Overall, budgets are perceived by 69.2% of respondents as very or extremely important. Based on the literature review on the topic one would expect respondents to be unsatisfied with annual budget. However there is very limited evidence on that.

Furthermore, Table 2 presents the respondents' opinions regarding common critics done to budgets.

Descriptive Statistics			
	Agree	Disagree	Frequency
Tool of rigid planning	33,3%	50,4%	98
Is too time consuming	51,3%	32,5%	98
It become easily out-of-date	51,3%	32,5%	98
Focused on short-term financial numbers	54,7%	30,8%	100
Does not stimulate strategic reflection	22,2%	59,8%	96
Unrealistic targets	20,5%	65,0%	100
Focused on targets	69,2%	14,5%	98
Obstructs innovation	69,2%	14,5%	100
Hinders fast-changing market conditions	17,1%	68,4%	100
Does not foster knowledge sharing between different departments	20,5%	65,0%	100
Too much hierarchical	40,2%	45,3%	100
It is only an annual ritual	24,8%	60,7%	100

Table 2: Attitudes to the consequences of budget or budgeting process

Commonly, respondents do not consider that annual budget is a managerial tool of rigid planning (50.4%) nor that it is too much hierarchical (45.3%) or does not foster knowledge sharing between different departments inside the company (65%), which is

consistent with the general view that it is a very or extremely important tool for planning purposes. Moreover, respondents do not agree that the annual budget sets unrealistic targets, but they agree that it is focused on targets and on short-term financial numbers. Still, they disagree that the budget does not stimulate strategic reflection and sets unrealistic targets. Yet, respondents agree that budget become easily out-of-date and it requires too much time to be prepared, implemented and executed which can demonstrate that budgets could be rigid and tricky to change and may be focused essentially on the past. Several authors mentioned in the literature review such as Hartmann (2000), Hope and Fraser (1997, 2003a), or Horngren et al. (2004) among others, mounted a wide-ranging critique to annual budgets that the majority of respondents disagree and such critiques do not seem to apply, at least, to Portuguese business environment.

Further, based in the respondents' point of view, the budget is a “user friendly”⁸ and well-known tool compared with some others managerial tools of planning, managing and evaluating performance. It can also be considered as an “early warning mechanism” to anticipate business evolution and to take timely corrective measures, since it works as “the appropriate tool to support decision making process allowing an effective management by objectives”. Besides, the use of budget allows an alignment of settled targets with the strategic plan of the company. The respondents also claim that “no other managerial tool allows such an effective cost control”, and more than half of respondents considered it as very or extremely, although 22.2% of respondents said that the annual budget is a reasonably important tool for controlling. Respondents also claim the idea of an “efficient standard costing setting and variance analysis”, the budget is

⁸ Quotes (translated) from the surveys.

considered the best tool for managers' performance evaluation, as the results presented in table 1 suggest. In addition respondents assert that budget is essential "to predict company's results" and for "tax planning purposes" and they are not aware of other managerial tool to fulfill these goals with such effectiveness.

Overall, such results do not indicate a prevalent dissatisfaction with annual budgets purposes and budgeting process among surveyed companies as one would expect. But it is possible that annual budgets could negatively impact companies' performance, since there is evidence that budgets are time-consuming for achieved results and managers might fail to implement necessary corrective measures. There is a consensual agreement, in surveyed companies, that budgets are very important and that cited drawbacks are overstated by literature on the topic. In contrast with these findings, Neely et al. (2003) stated that managers should be dissatisfied with the use of budgets, mainly because of the lack of connection between the budget and corporate strategy. Notwithstanding Libby and Lindsay (2010) also conclude that budgets continue to be used for them purposes in most of the North American companies surveyed.

4.2 - Changes/improvements in the budgeting process

Acclaimed researchers such as Hope and Fraser (1997, 2003a) state that the answer to budgeting problems is not to improve this process, but instead abandon or seek to abandon traditional budgeting. Although for the largest 500 companies operating in the merchandising and manufacturing sectors in Portugal traditional budgeting is not diminishing in importance, there is evidence that other managerial techniques of planning, control and evaluation are already being applied by managers and are increasing their importance. Actually, 70.1% of the respondents are using or

plan to use in addition to annual budget tools like rolling forecasts, activity-based costing and budgeting, balanced scorecard, benchmarking and non-financial measures (see table 3).

The rolling forecast technique is the most used alternative tool and is already being used by 41.9% of these respondents, with 13.7% of the respondents planning to implement it in the following years. Regarding activity-based costing and budgeting, 41% of the respondents already apply them in their companies while 18.8% intend to put them into practice in the future. The balance scorecard is adopted by 39.3% of respondent companies and other 17.1% plan to implement it as well. Likewise to complement the annual budget, companies plan to keep using non-financial measures (51.3%) and benchmarking (39.3%) and fewer respondents plan to implement these techniques in the following years.

Descriptive statistics

	Keep	Implement	Frequency
Rolling forecasts	44,4%	13,7%	68
Activity-based costing and budgeting	41,0%	18,8%	70
Balanced scorecard	39,3%	17,1%	66
Benchmarking	39,3%	17,1%	66
Non-financial measures	51,3%	6,8%	68

Table 3: Tools that are being used and that respondents plan to use in addition to traditional budgeting

Also companies (26.32%) use some others less notorious techniques such as SAP BPC⁹ (5%), a continuous improvement process (CIP)¹⁰ (3.3%), discounted cash flow models (1.6%), and sales and operations planning (S&OP) (1.6%). Respondents report that these techniques are now more important, as they “allow a better adaptability

⁹ SAP Business objects Planning and Consolidation is an enterprise performance management (EPM) tool that can cater for all types of planning and forecasting, and providing reporting from simple small processes to complex ones.

¹⁰ Is an ongoing effort to improve products, services and/or processes.

to markets reality” and permit “to anticipate scenarios in uncertainty moments, [and] to better compute the risk of strategic options”. This shows evidence that companies are applying better budgeting, as suggested by Hansen et al. (2003), corroborating the intuition that traditional budgeting is likely to be combined with an increasingly usage of the aforementioned techniques.

Nevertheless, other than the seven companies that do not use annual budget as a tool for planning, controlling and evaluating performance, there are also **two** other companies that are planning to abandon the preparation and implementation of the annual budget. These companies decided, or plan, to abandon the budget implementing the following alternative tools: 1) **rolling forecasts**, seven out of nine companies in these circumstances use this tool; 2) **activity-based costing** and **budgeting** are used by four companies and other two plan to implement them in the next years; 3) **the balanced scorecard** is less popular, since only two had implement it and other two plan to start using it in the next years; 4) regarding **non-financial measures**, 5 companies use these type of measures and, 5) finally, all of these companies already apply the **benchmarking** technique. Table 4 shows the results just presented:

Descriptive Statistics			
	Keep	Implement	Frequency
Rolling forecasts	5,98%	0,00%	7
Activity-based costing and budgeting	3,42%	1,71%	6
Balanced scorecard	1,71%	1,71%	4
Benchmarking	4,27%	1,71%	7
Non-financial measures	5,98%	1,71%	9

Table 4: Tools that are being used and that respondents plan to use instead of traditional budget

Generally, respondents’ justify the use of these alternative tools as: “offer a better definition of targets which allow a better decision making process”, or “they are more dynamic and consequently permit a continuous improvement in the performance

of all company's departments". Moreover, 66.7% of the respondents agree upon the idea that the implementation of these tools leads to improvements in financial performance¹¹. A surveyed company abandoned traditional budgeting and replaced it with performance-based budgeting arguing that it allows a more efficient control of operations, since traditional budgeting was insufficient to conform to company's long-term strategy.

Respondents justify that such tools compared with annual budget allow a more flexible planning and monitoring of operational performance, as the communication of goals is always updated and consequently more motivating for employees that will increase productivity, reduce costs and improve financial performance¹².

4.3 - Correlation between the uses and consequences of the budget

In order to study if there are trends between the studied variables, correlation tests were performed using Pearson product-moment correlation coefficient¹³ to measure the linear dependence between two variables¹⁴. The main findings are following presented:

Firstly, the use of the annual budget and the activity sector where the company operates are statistically positively correlated¹⁵ ($\rho^{16}=0.217$), companies operating in the manufacturing, retail and civil construction sectors are more likely to use the annual

¹¹ This term is used as a general measure of a company's overall financial health over a given period of time, and it line items such as operational revenues, operating income or cash flow from operations can be used, total unit sales, as well as other relative measures to access results of a firm's policies and operations in monetary terms.

¹² Adapted from respondents' comments of question 20.

¹³ Pearson product-moment correlation coefficient, $\rho_{X,Y} = \frac{cov(X,Y)}{\sigma_X \sigma_Y}$, is a measure of the linear dependence between two variables.

¹⁴ All correlation significance tests mentioned were performed are two-tailed with a significance level of 5% and 4. Values between 0 and 0.3 (0 and -0.3) indicate a weak positive (negative) linear relationship.

¹⁵ The correlation is said to be significant when the two-tailed significance test (p-value) is smaller than the critical value.

¹⁶ Correlation coefficient.

budget whereof companies operating in other sectors. Additionally, companies operating in these sectors are also the ones who are more likely to disagree with budget's critics, since there is a negative linear relationship statistically significant between the sector and following critics: does not stimulate strategic reflection ($\rho=-0.248$), unrealistic targets ($\rho=-0.196$), obstructs innovation ($\rho=-0.292$), hinders fast-changing market conditions ($\rho=-0.321$), too much hierarchical ($\rho=-0.22$) and it is only an annual ritual ($\rho=-0.265$). Furthermore, there is a statistically significant negative linear relationship between the companies operating in these same sectors and the use of rolling forecasts ($\rho=-0.279$).

Secondly, companies with a smaller 2010 sales volume are more likely to do not use the annual budget, since there is evidence of a statistically significant negative correlation ($\rho=-0.186$). Besides companies with higher 2010 sales volume are the ones who are more likely to agree that budget becomes easily out-of-date ($\rho=0.187$) and that it hinders fast-changing market conditions ($\rho=0.203$).

Thirdly, managers that are working at the company for less time are more likely to agree that budget does not stimulate strategic reflection inside the company ($\rho=-0.248$).

4.4 - Non-parametric tests

The Mann-Whitney U is a statistical hypothesis test to assess whether two independent samples of observations have equally large values i.e. a significance test to assess whether a result could be generally extended to a pair of variables. Taking that into account, the goal is to test if the survey's question 7 (asked if respondents use the annual budget in their companies) along with each of questions 1 to 6 (they regard company and respondent's personal and professional background) reveal significant

differences in responses from respondents in different departments, different years working at the company, companies' activity sector, *etc.* The main conclusions, summarized in table 5, drawn from Mann-Whitney U tests are: 1) it is likely that the business sector where the company has its core activity affects the use of annual budget, because result is significant at the 5% level (sig.= 0.02); and 2) the sales volume is expected to affect the use of annual budget, since the test is also significant at 5% level (sig=0.04).

Non-parametric Test: Mann-Whitney U

	Do you use the Annual Budget?	Mean Rank	Significance Test
Function in the company	Yes	58.29	0.36
	No	70.14	
Years in the function	Yes	58.66	0.83
	No	56.07	
Years in the company	Yes	60.16	0.10
	No	40.79	
Core business sector	Yes	57.18	0.02*
	No	87.57	
Sales volume	Yes	60.58	0.04*
	No	34.14	
Competitive environment	Yes	60.20	0.10
	No	40.07	

Table 5: Mann-Whitney U test results investigating if different variables (functions, years, etc) influence the use of annual budget (Grouping variable); **Note:** * indicates significance at the 5% (two-tailed test)

Corroborating the previous correlation tests done the Mann-Whitney U test demonstrate that companies operating in the manufacturing, retail and civil construction sectors are more likely to use the budget, see also figure 5.

Further, it is also statistical significant that the sales volume affects the use of the budget, thus the smaller the sales volume the higher the probability that the company does not use the budget, Figure 6. Perhaps smaller companies could easily and with fewer resources implement and keep alternative tools to plan, control and evaluate performance, since they could be more flexible. Nevertheless, there is no clue in

previous studies remitting for such conclusions, therefore one might only speculate why these happen.

Cross-Tabulations

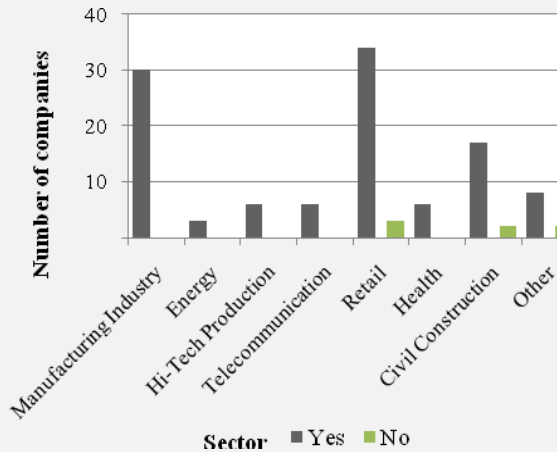


Figure 5: Sector where respondents' companies operate? * the use of budget

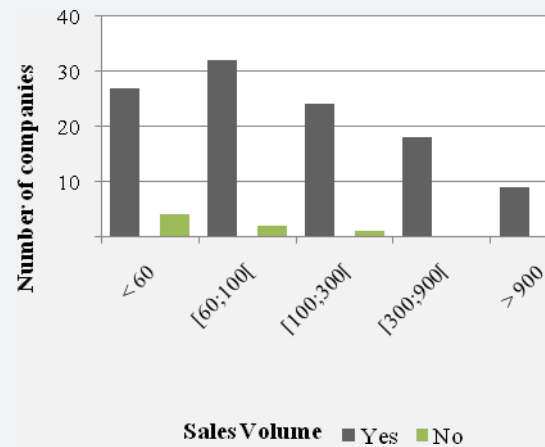


Figure 6: The sales volume of respondent companies? * the use of budget

Additionally, in order to statistically assess the effect of both sales volume and activity sector on the use of budget a linear regression through Analysis of Variance (ANOVA) was performed. The ANOVA actually did not show evidence that there is a statistical significant relationship between these two variables with the use of annual budget, since the square of the sample correlation coefficient between the outcomes and their predicted values was only 0.071 ($F = 2.277$ and $p > 0.000$). Thus, even with significant individual Mann-Whitney tests both variables together (sales volume and activity sector), are not enough to infer whether a company would use or not the budget.

To study different pairs of variables other Mann-Whitney U tests were undertaken. It was also undertaken a Mann-Whitney U statistic to test whether the company is planning to abandon the use of budget (question 13) with, again, company's and respondent's personal and professional background. It is observable that company and respondents' personal and professional background do not significantly affect

whether the companies plan to abandon the use of budget. So, the Mann-Whitney U tests substantiate that the agreement with the criticisms appointed to annual budget (question 12) do not impact whether the companies are planning to abandon it as there are no statistical significant results at a 5% critical level.

Furthermore, companies with a higher competitive business environment are more likely to have already implemented or be looking to implement other managerial tools. Such pattern is corroborated by Mann-Whitney U test that presents significant results (table 5). Intuitively, companies facing high or extremely high competition cannot rely merely on budget; instead they have to use complementary tools to keep competitiveness and a closer business's monitoring.

Likewise it was performed the Kruskal-Wallis¹⁷ non-parametric method for testing if the company and respondents' personal and professional background (question 1 to 6) affect respondents overall classification of the budgeting tool, which in the survey follows a Likert scale from almost irrelevant (1) to extremely important (5). Virtually all these results reveal no significant differences in classifications of annual budgets versus respondents' personal and professional background. Instinctively, there is no statistical significant characteristic of company or of respondent that affects how they classify overall annual budget purposes.

Section 5: Discuss and Conclusions

There are no previous works with similar purposes as those of this WP for Portugal. Yet, the present WP shows that there is little evidence to support the assumption taken by researchers that there is a widespread discontentment with traditional budgeting among the largest 500 companies operating in the merchandising

¹⁷ Kruskal-Wallis non-parametric test is an extension of the Mann-Whitney U test to 3 or more groups.

and manufacturing sectors in Portugal. By the contrary, managers of these companies perceive budgets as important or extremely important tools, especially to plan, control, coordinate and evaluate performance. Besides, against Hope and Fraser (1997) argument, surveyed managers have a propensity to disagree with suggestions that budgets cause a variety of structural and organizational problems.

Further, this study also found that:

- Companies classify the purposes and the overall value of the budget as very or extremely important; Besides, managers of the surveyed companies stand that the budget serves essentially four main purposes to: plan, coordinate, control and evaluate performance; this finding goes against Dugdale and Lyne (2004) that concluded that the “core” uses of budgets do not include to control;
- Only 6% of surveyed companies do not use the budget, whilst only 1.7% of surveyed companies plan to abandon traditional budgeting. The companies that do not use the budget rely on rolling forecasts, activity-based costing and budgeting, balanced scorecard, benchmarking, other non-financial measures and they monitoring based on financial measures such as EVA, DCF and other financial ratios instead of traditional budgeting;
- While the respondents recognize some limitations and problems regarding the use of the budget, the remaining 94% of surveyed companies still use the annual budget and there is no empirical evidence reflecting that companies are planning to abandon it; Thus, these companies rather than abandoning the budget are applying the better budget approach (71.1% of surveyed companies) using: the rolling forecasts (44.4% use it), activity-based costing and budgeting (41%), balanced scorecard (39.3%),

benchmarking (40%), some non-financial measures (51.2%) and other techniques such as CIP, S&OP, SAP BPC and performance-based budgeting;

- The use of the budget and the activity sector where the company operates are statistically positively correlated: companies operating in the manufacturing, retail and civil construction sectors are more likely to use the annual budget whereof companies operating in other sectors; Also companies with a smaller 2010 sales volume are more likely to do not use the budget; and managers that are working at the company for less time are more likely to agree that the budget does not stimulate strategic reflection inside the company;
- Statistical tests also helped to conclude that companies with a higher competitive business environment are more likely to have already implemented or be looking to implement other managerial tools;

Traditional budgeting still plays a major role in largest companies operating in Portugal. However, it has been proofed that the budgeting technique is being improved and surveyed managers that are applying the better budgeting approach by complementing the budget with additional techniques.

In conclusion, the findings of this work project should be interpreted taking into account its limitations; the response rate was only 24.5% and the studied companies are only the 500 largest companies operating in Portugal which is not entirely representative of Portuguese business reality. In light on these limitations, future research should be performed in order to verify whether the conclusions of this WP hold true for more companies inside this group and for medium and small size companies operating in Portugal.

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A Work Project presented as part of the requirements for the Award of a Masters
Degree in Finance from NOVA School of Business and Economics

Are annual budgets being abandoned by companies operating in Portugal?

Evidence from the 500 “Maiores e Melhores”

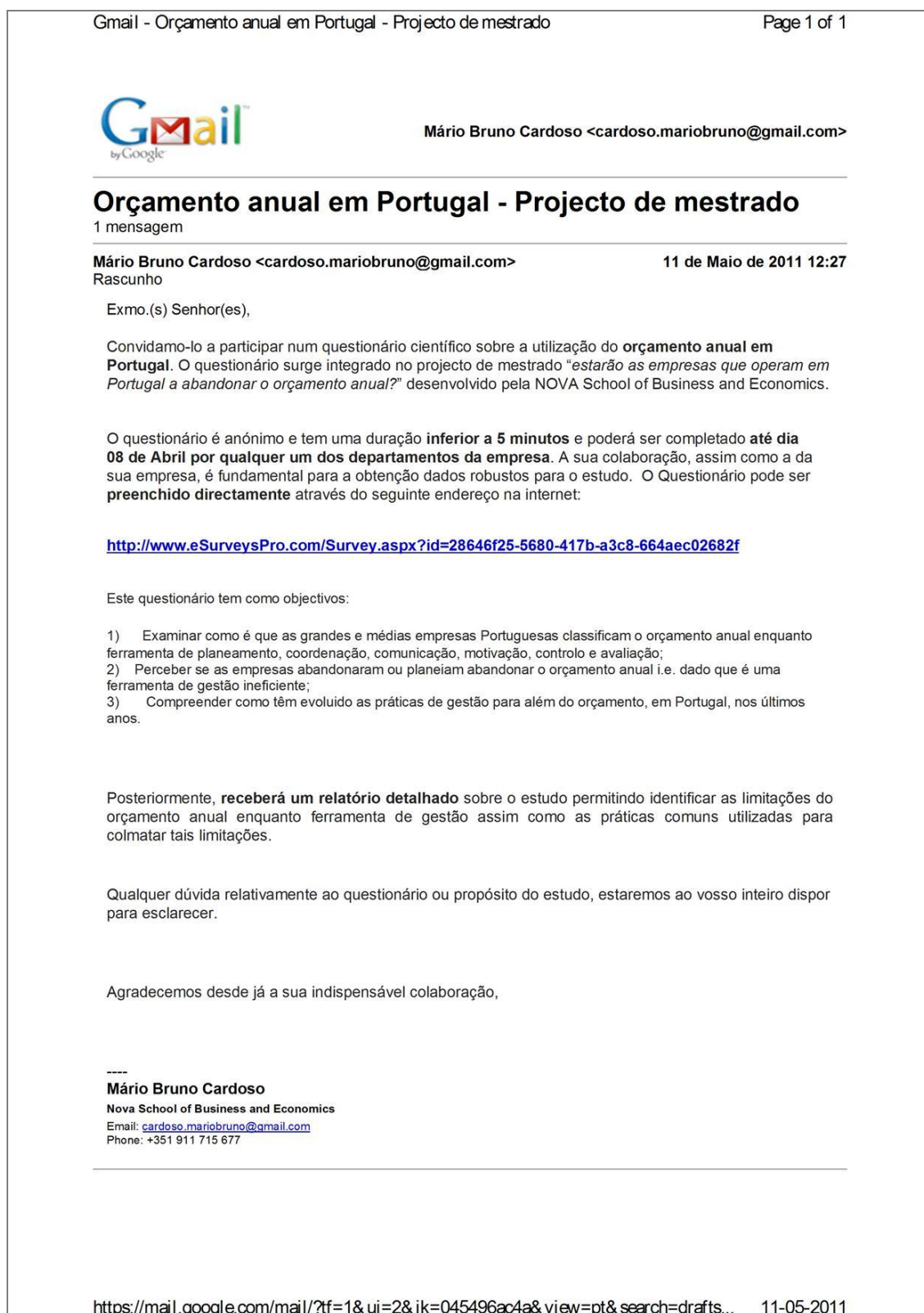
Appendices

Mário Bruno Cardoso, 225

*A Project carried out on with the supervision of:
Professor Inês Cruz*

June 6, 2011

Appendix A – Email sent to companies explaining the purposes of the work project and asking to answer the survey



Appendix B – Pre-notice email sent to companies alerting for later phone-interview



Mário Bruno Cardoso <cardoso.mariobruno@gmail.com>

Orçamento anual em Portugal - Projecto de mestrado

1 mensagem

Mário Bruno Cardoso <cardoso.mariobruno@gmail.com>
Rascunho

11 de Maio de 2011 13:08

Exmo.(s) Senhor(es),

Serve este email para convidamo-lo a participar num questionário científico, através de telefone, sobre a utilização do **orçamento anual em Portugal**. O questionário surge integrado no projecto de mestrado "*estarão as empresas que operam em Portugal a abandonar o orçamento anual?*" desenvolvido pela NOVA School of Business and Economics.

O questionário é anónimo e tem uma duração média de resposta de **5 minutos**. O questionário será efectuado, por nós, via entrevista telefónica a V/ Exelência e entraremos em contacto telefónico até dia **16 de Abril**.

Este questionário tem como objectivos:

- 1) Examinar como é que as grandes e médias empresas Portuguesas classificam o orçamento anual enquanto ferramenta de planeamento, coordenação, comunicação, motivação, controlo e avaliação;
- 2) Perceber se as empresas abandonaram ou planeiam abandonar o orçamento anual i.e. dado que é uma ferramenta de gestão ineficiente;
- 3) Compreender como têm evoluído as práticas de gestão para além do orçamento, em Portugal, nos últimos anos.

Posteriormente, **receberá um relatório detalhado** sobre o estudo permitindo identificar as limitações do orçamento anual enquanto ferramenta de gestão assim como as práticas comuns utilizadas para colmatar tais limitações.

Qualquer dúvida relativamente ao questionário ou propósito do estudo, estaremos ao vosso inteiro dispor para esclarecer.

Agradecemos desde já a sua indispensável colaboração,

Mário Bruno Cardoso
Nova School of Business and Economics
Email: cardoso.mariobruno@gmail.com
Phone: +351 911 715 677

<https://mail.google.com/mail/?ui=2&ik=045496ac4a&view=pt&search=drafts&th=12...> 11-05-2011

Appendix C – Survey sent by internet link and phone-interview

Note: the survey domain in the internet was settled in the website: www.esurveyspro.com

Section A: Company's and respondent's personal and professional background

1 - What type of function do you have inside the company?

Financial
Purchases
Sales
Administrative
Operational
Human Resources
Marketing
Law
Other

2 – For how many years are you working in that function?

<2
2 – 4
4 – 6
>6

3 – How many years are you working on the company?

<2
2 – 4
4 – 6
>6

4 – In which sector do you have your core business?

Manufacturing Industry
Energy
Hi-Tech Production
Telecommunication
Retail
Health
Civil Construction
Other

5 – Which was the sales volume of your company in 2010?

< 60 Million
Between 60 Million and 100 Million
Between 100 Million and 300 Million
Between 300 Million and 900 Million
> 900 Million

5 – How do you characterize your business competitive environment?

Roughly competitive
Not very competitive
Reasonably competitive
Very competitive
Extremely competitive

Section B: Use of Budget

7 – Do you use the **annual budget** as a tool for planning, management and control in your company?

Note: Annual budget stands for a financial plan used to plan, implement and control actions/decisions inside companies, typically prepared for the period of one year.

Yes, why do you use the annual budget?
No

8 – How many weeks do you spend on setting the annual budget in your company?

<1
1-2
2-3
3-4
>5

9 - How many annual budget's revisions are made during the year of its implementation?

1
2
3
4
5 or more

Q10 – In your point of view, please point 3 of the main advantages and disadvantages of annual budget as a tool for managing your company:

Section C: Attitudes of respondents towards annual budget

Q11 – How do you classify annual budget as a tool to perform with the aforementioned purposes?

Academic literature highlight that *Budgets* serve a number of useful purposes, such as:

- Planning annual operations;
- Coordinating the activities of the various parts of the organization and ensuring that the parts are in harmony with each other;
- Communicating plans to the various responsibility centre managers;
- Motivating managers to strive to achieve the organizational goals;
- Controlling activities; and

- Evaluating the performance of managers.

	Almost irrelevant	Not very important	Reasonably important	Very important	Extremely important
Planning					
Coordinating					
Communicating					
Motivating					
Controlling					
Evaluating operations					
Overall					

12 – Next table shows some of the core limitations pointed out to annual budgets by academics and practitioners. Please, indicate if you agree or disagree with each one of the following statements:

	Agree	Disagree
Tool of rigid planning		
Is too time consuming		
It became easily of date		
Focused on short-term financial numbers		
Does not stimulate strategic reflection		
Unrealistic targets		
Focused on targets		
Obstructs innovation		
Hinders fast-changing market conditions		
Does not foster knowledge sharing between different departments		
Too much hierarchical		
It is only an annual ritual		

Section D: Beyond and/or better budgeting practices

(DO NOT USE THE ANNUAL BUDGET OR PLAN TO ABANDON IT)

Q13 – Attending to annual budgets' limitations, do you or anyone else plan to abandon the annual budget preparation in the following years?

Yes

No, why do you plan to abandon the use of annual budget?

14 – Which of the following tools of planning, management and control do you plan to keep and/or implement to replace traditional annual budget?

	Keep	Implement
Rolling Forecasts		

Activity-based costing and budgeting		
Balanced scorecard		
Non financial measures		
Benchmarking		

15 – Beyond tools of planning, control and management mentioned in question 14, do you or anyone else plan to use other tools?

Yes, which alternative tools do you use?

No

(USE THE ANNUAL BUDGET AND DOES NOT PLAN TO ABANDON IT)

16 – Do you or anyone in your company plan to keep or implement any tool of planning, control and management that complement the annual budget?

Yes, why do you plan keep your implement alternative tools?

No

17 – Select which of the following tools do you plan or planning to keep or implement to complement the annual budget:

	Keep	Implement
Rolling Forecasts		
Activity-based costing and budgeting		
Balanced scorecard		
Non financial measures		
Benchmarking		

18- Beyond tool mentioned in question 17, do you or anyone else inside the company plan to use other managerial tools of planning, control and evaluation?

Yes

No

Section E: How respondents describe the impact of annual budget in company's financial performance

19 – Do you believe that you can improve your financial performance by adding some of the mentioned tools?

Yes

No

20 – Why do you believe that you can improve your financial performance adding these tools?

Appendix D – Descriptive statistics: survey's results

What type of function do you have inside the company?	Frequency	Percent
Financial	42	35.90
Purchases	4	3.42
Sales	9	7.69
Administrative	23	19.66
Operational	18	15.38
Human Resources	8	6.84
Marketing	11	9.40
Other	2	1.71
Total	117	100
<i>Mean</i>		3.44
<i>Std. Deviation</i>		2.21

For how many years are you working in that function?	Frequency	Percent
<2	14	11.97
2-4	34	29.06
4-6	13	11.11
>6	55	47.01
Total	117	100.00
<i>Mean</i>		2.94
<i>Std. Deviation</i>		1.12

How many years are you working on the company?	Frequency	Percent
<2	14	11.97
2-4	12	10.26
4-6	20	17.09
>6	71	60.68
Total	117	100.00
<i>Mean</i>		3.26
<i>Std. Deviation</i>		1.06

In which sector do you have your core business?	Frequency	Percent
Manufacturing Industry	30	25.64
Energy	3	2.56
Hi-Tech Production	6	5.13
Telecommunication	6	5.13
Retail	37	31.62
Health	6	5.13
Civil Construction	19	16.24
Other	10	8.55
Total	117	100
<i>Mean</i>		4.38
<i>Std. Deviation</i>		2.39

Which was the sales volume of your company in 2010?	Frequency	Percent
< 60 Million	31	26.50

Between 60 Million and 100 Million	34	29.06
Between 100 Million and 300 Million	25	21.37
Between 300 Million and 900 Million	18	15.38
> 900 Million	9	7.69
Total	117	100.00
<i>Mean</i>	2.49	
<i>Std. Deviation</i>	1.25	

How do you characterize your business competitive environment?	Frequency	Percent
Roughly competitive	9	7.69
Not very competitive	4	3.42
Reasonably competitive	6	5.13
Very competitive	60	51.28
Extremely competitive	38	32.48
Total	117	100.00
<i>Mean</i>	3.97	
<i>Std. Deviation</i>	1.10	

Do you use the Annual Budget as a tool for planning, management and control in your company?	Frequency	Percent
Yes	110	94.02
No	7	5.98
Total	117	100.00
<i>Mean</i>	1.06	
<i>Std. Deviation</i>	0.24	

How many weeks do you spend on setting the annual budget in your company?	Frequency	Percent
<1	10	8.55
1-2	17	14.53
2-3	22	18.80
3-4	24	20.51
>5	33	28.21
Total	117	100.00
<i>Mean</i>	3.17	
<i>Std. Deviation</i>	1.63	

How many annual budget's revisions are made during the year of its implementation?	Frequency	Percent
1	35	29.91
2	34	29.06
3	14	11.97
4	9	7.69
5 or more	14	11.97
Total	117	100.00
<i>Mean</i>		
<i>Std. Deviation</i>		

Do you agree or disagree with each one of the following statements?	Agree (%)	Disagree (%)	Frequency	Std dev
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Tool of rigid planning	33.33	50.43	98	0.745
Is too time consuming	51.28	32.48	98	0.682
It became easily of date	51.28	32.48	98	0.682
Focused on short-term financial numbers	54.70	30.77	100	0.656
Does not stimulate strategic reflection	22.22	59.83	96	2.781
Unrealistic targets	20.51	64.96	100	0.738
Focused on targets	69.23	14.53	98	0.557
Obstructs innovation	69.23	14.53	100	0.737
Hinders fast-changing market conditions	17.09	68.38	100	0.737
Does not foster knowledge sharing between different departments	20.51	64.96	100	0.738
Too much hierarchical	40.17	45.30	100	0.713
It is only an annual ritual	24.79	60.68	100	0.737
Attending to annual budgets' limitations. do you or anyone else plan to abandon the annual budget preparation in the following years?	Frequency		Percent	
Yes	2		1.71	
No	92		78.63	
Total	117		100.00	
<i>Mean</i>			1.59	
<i>Std. Deviation</i>			0.80	
Rolling Forecasts	Frequency		Percent	
Keep	7		5.98	
Total	117		100.00	
<i>Mean</i>			0.06	
<i>Std. Deviation</i>			0.24	
Activity-based costing and budgeting	Frequency		Percent	
Keep	4		3.42	
Implement	2		1.71	
Total	117		100.00	
<i>Mean</i>			0.07	
<i>Std. Deviation</i>			0.31	
Balanced scorecard	Frequency		Percent	
Keep	2		1.71	
Implement	2		1.71	
Total	117		100.00	
<i>Mean</i>			0.05	
<i>Std. Deviation</i>			0.29	
Non financial measures	Frequency		Percent	
Keep	5		4.27	
Implement	2		1.71	

Total	117	100.00
<i>Mean</i>		<i>0.08</i>
<i>Std. Deviation</i>		<i>0.33</i>
Benchmarking	Frequency	Percent
Keep	7	5.98
Implement	2	1.71
Total	117	100.00
<i>Mean</i>		<i>0.10</i>
<i>Std. Deviation</i>		<i>0.35</i>
Do you or anyone in your company plan to keep or implement any tool of planning, control and management that complement the annual budget?	Frequency	Percent
Yes	82	70.09
No	8	6.84
Total	117	100.00
<i>Mean</i>		<i>0.85</i>
<i>Std. Deviation</i>		<i>0.52</i>
Rolling Forecasts	Frequency	Percent
Keep	52	44.44
Implement	16	13.68
Total	117	100.00
<i>Mean</i>		<i>0.72</i>
<i>Std. Deviation</i>		<i>0.69</i>
Activity-based costing and budgeting	Frequency	Percent
Keep	48	41.03
Implement	22	18.80
Total	115	98.29
<i>Mean</i>		<i>1.18</i>
<i>Std. Deviation</i>		<i>2.88</i>
Balanced scorecard	Frequency	Percent
Keep	46	39.32
Implement	20	17.09
Total	117	100.00
<i>Mean</i>		<i>0.75</i>
<i>Std. Deviation</i>		<i>0.74</i>
Non financial measures	Frequency	Percent
Keep	60	51.28
Implement	8	6.84
Total	117	100.00
<i>Mean</i>		<i>0.66</i>
<i>Std. Deviation</i>		<i>0.61</i>

Benchmarking	Frequency	Percent
Keep	46	39.32
Implement	20	17.09
Total	117	100.00
<i>Mean</i>		0.75
<i>Std. Deviation</i>		0.74

Do you believe that you can improve your financial performance by adding some of the mentioned tools?	Frequency	Percent
Yes	78	66.67
No	25	21.37
Total	117	100.00
<i>Mean</i>		1.09
<i>Std. Deviation</i>		0.57

Appendix E – Tables of correlations statistically significant

Note: Q stands for Question

Table E1 - PEARSON CORRELATION Results

	Q1	Q2	Q3	Q4	Q5	Q6
Question 1 (Q1) - What type of function do you have?	1					
Q2 – Years in the function?	-.077 .413	1				
Q3 –Years in the company?	.164 .078	.625** .000	1			
Q4 – Sector of activity?	-.120 .199	-.158 .091	-.189* .041	1		
Q5 – 2010 sales volume?	-.031 .742	-.005 .960	.175 .060	-.166 .074	1	
Q6 – Business competitive environment?	.083 .376	.139 .137	.138 .137	-.179 .053	-.091 .329	1
Q7 - Do you use the Annual Budget?	.098 .295	-.019 .842	-.131 .158	.217* .019	-.186* .045	-.060 .522

Underlying value: Significance (two-tailed)

*. Correlation is significant at the 0.05 level (two-tailed)

**. Correlation is significant at the 0.01 level (two-tailed)

Table E2 - PEARSON CORRELATION

	Q3	Q4	Q5
Q7 - Do you use the Annual Budget?	-.131 .158	.217* .019	-.186* .045
Q10.1 - Planning	.043 .648	-.260** .005	.122 .190
Q10.2 - Coordinating	.230* .013	-.289** .002	.157 .090
Q10.3 - Communicating	.148 .111	-.255** .006	.069 .457
Q10.4 - Motivating	.119 .201	-.307** .001	.105 .261
Q10.5 - Controlling	.183* .049	-.300** .001	.129 .166
Q10.6 Evaluating operations	.166 .073	-.231* .012	.162 .080
Q10.7 - Overall	.167 .071	-.272** .003	.103 .269

Underlying value: Significance (two-tailed)

*. Correlation is significant at the 0.05 level (two-tailed)

**. Correlation is significant at the 0.01 level (two-tailed)

Table E3 - PEARSON CORRELATION Results

	Q1	Q3	Q4	Q5
Q12.1 - Tool of rigid planning	-.181 .051	.092 .326	-0.131 .159	0.042 .655
Q12.2 - Is too time consuming	-.007 .937	.131 .161	-0.181 .051	0.119 .202
Q12.3 - It became easily of date	-.007 .937	.154 .096	-0.138 .137	0.018 .850
Q12.4 - Focused on short-term financial numbers	-.103 .269	.061 .510	-0.144 .122	.187* .044
Q12.5 - Does not stimulate strategic reflection	-.190* .040	-.215* .020	-.248** .007	-0.01 .951
Q12.6 - Unrealistic targets	-.215* .020	.081 .385	-.196* .034	0.058 .531
Q12.7 - Focused on targets	-.141 .129	.095 .307	-.403** .000	0.161 .083
Q12.8 - Obstructs innovation	-.140 .132	.180 .053	-.292** .001	0.134 .150
Q12.9 - Hinders fast-changing market conditions	-.161 .082	.158 .090	-.321** .000	.209* .024
Q12.10 - Does not foster knowledge sharing between different departments	-.067 .471	.169 .069	-.333** .000	0.096 .304
Q12.11 - Too much hierarchical	-.212* .022	.108 .247	-.220* .017	0.082 .380
Q12.12 - It is only an annual ritual	-.109 .243	.118 .206	-.265** .004	.203* .028

Underlying value: Significance (two-tailed)

*. Correlation is significant at the 0.05 level (two-tailed)

**, Correlation is significant at the 0.01 level (two-tailed)

Table E4 - PEARSON CORRELATION Results

	Q1	Q2	Q3	Q4	Q5	Q6
Q17.1 - Rolling Forecasts	-.026	-.022	.044	-.279**	0.17	.047
Q17.2 - Activity-based costing and budgeting	.781	.813	.639	.002	.067	.616
Q17.3 - Balanced scorecard	-.123	.139	.101	-0.137	0.023	.042
Q17.4 - Non financial measures	.189	.141	.284	.143	.809	.652
Q17.5 - Benchmarking	.091	-.056	-.053	-0.151	0.061	.066
	.332	.553	.576	.108	.517	.483
	.024	-.074	-.107	-0.159	0.011	.140
	.799	.434	.255	.090	.904	.136
	.070	.050	-.098	-.408**	-0.03	.158
	.459	.594	.298	.000	.712	.092

Underlying value: Significance (two-tailed)

*. Correlation is significant at the 0.05 level (two-tailed)

**. Correlation is significant at the 0.01 level (two-tailed)

Note 1: it is only presented statistical significant variables;

Note 2: the correlation coefficient was computed according with the formula:

$$\rho_{X,Y} = \text{corr}(X, Y) = \frac{\text{cov}(X, Y)}{\sigma_X \sigma_Y} = \frac{E[(X - \mu_X)(Y - \mu_Y)]}{\sigma_X \sigma_Y},$$

Appendix F – Non-parametric tests: Mann-Whitney U

Table F1 – Mann-Whitney U test ranks

Do you use annual budget?		N	Mean Rank	Sum of Ranks	Significance
Function	Yes	110	58.29	6412	0.355
	No	7	70.14	491	
Working in the function	Yes	109	58.66	6393.5	0.832
	No	7	56.07	392.5	
Working in the company	Yes	110	60.16	6617.5	0.095
	No	7	40.79	285.5	
Business sector	Yes	110	57.18	6290	0.018
	No	7	87.57	613	
2010 Sales volume	Yes	110	60.58	6664	0.039
	No	7	34.14	239	
Business competitive environment	Yes	110	60.2	6622.5	0.095
	No	7	40.07	280.5	

Note 1: Mann-Whitney U test results investigating if different variables (functions, years, etc) influence if respondents use annual budget (Grouping variable)

Note 2: No statistically significant results at 5% Two-tailed test

Table F2 – Mann-Whitney U test ranks

Do you plan to abandon annual budget?		N	Mean Rank	Sum of Ranks	Significance
Tool of rigid planning	Yes	2	44.00	88.00	.831
	No	92	47.58	4377.00	
Is too time consuming	Yes	2	32.50	65.00	.348
	No	92	47.83	4400.00	
It became easily of date	Yes	2	30.50	61.00	.298
	No	92	47.87	4404.00	
Focused on short-term financial numbers	Yes	2	29.50	59.00	.263
	No	92	47.89	4406.00	
Does not stimulate strategic reflection	Yes	2	60.50	121.00	.403
	No	92	47.22	4344.00	
Unrealistic targets	Yes	2	59.50	119.00	.405
	No	92	47.24	4346.00	
Focused on targets	Yes	2	63.00	126.00	.244
	No	92	47.16	4339.00	
Obstructs innovation	Yes	2	57.50	115.00	.460
	No	92	47.28	4350.00	
Hinders fast-changing market conditions	Yes	2	57.50	115.00	.460
	No	92	47.28	4350.00	
Does not foster knowledge sharing between different departments	Yes	2	58.50	117.00	.432
	No	92	47.26	4348.00	
Too much hierarchical	Yes	2	47.50	95.00	1.000
	No	92	47.50	4370.00	
It is only an annual ritual	Yes	2	37.50	75.00	.504
	No	92	47.72	4390.00	

Note 1: Mann-Whitney U test results investigating if different variables (functions, years, etc) influence if respondents plan to abandon the annual budget (Grouping variable)

Note 2: No statistically significant results at 5% Two-tailed test

Appendix G – Non-parametric tests: Kruskal-Wallis H

Table G1 – Kruskal-Wallis H test

	Overall	N	Mean Rank	Significance
Function in the company	Reasonably important	19	54.92	0.584
	Very important	58	50.84	
	Extremely important	23	45.98	
Years in the function	Reasonably important	18	46.64	0.644
	Very important	58	49.40	
	Extremely important	23	54.15	
Years in the company	Reasonably important	19	51.95	0.684
	Very important	58	48.76	
	Extremely important	23	53.70	
Core business sector	Reasonably important	19	50.21	0.971
	Very important	58	51.03	
	Extremely important	23	49.39	
Sales volume	Reasonably important	19	60.11	0.176
	Very important	58	49.97	
	Extremely important	23	43.91	
Competitive environment	Reasonably important	19	36.16	0.011
	Very important	58	51.24	
	Extremely important	23	60.48	

Note 1: Test if different respondents' and companies' characteristics affect the classification of overall purposes of budget

Note 2: No statistically significant results at 5% Two-tailed test